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BELIZE

**MINISTRY OF NATURAL RESOURCES
DEPARTMENT OF AGRICULTURE**

ANNUAL REPORT
AND
SUMMARY OF STATISTICS

1984

INDEX

	Page
Preface	ii
<u>Part One -- Work of the Department</u>	
I. Organizational Chart	1
II. Finance	2
III. Services provided by the Department	3
IV. Agricultural Research and Development.....	5
V. Agricultural Education.....	9
VI. Agricultural Cooperatives.....	10
VII. Agrometeorology	10
VIII. Agricultural Legislation	11
<u>Part Two -- Summary of Statistics</u>	
I. Weather	12
<u>Export Crops</u>	
II. Sugar	13
III. Citrus	15
IV. Bananas	17
V. Cocoa	18
VI. Mangoes	20
VII. Honey	21
<u>Domestic Crops</u>	
VIII. Rice	22
IX. Maize	24
X. Beans	25
XI. Other Crops.....	26
XII. Marketing Board	28
<u>Livestock</u>	
XIII. Consumption of animal feeds	30
XIV. Beef	30
XV. Pork	32
XVI. Poultry	34
XVII. Dairy	35
<u>Agricultural Inputs</u>	
XVIII. Machinery services	36
XIX. Fertilizer	37
XX. Agricultural credit	38
Appendix I -- Map of Belize	40

Preface

The 1984 Annual Report of the Department of Agriculture follows the format of previous reports. Part 1 covers the work of the Department, including brief reviews of the services provided and research activities undertaken during the year. Short summaries are given of the achievements of the main agricultural projects operating in Belize and other institutions concerned with agricultural development.

Part 11 consists of a commodity-by-commodity analysis of agricultural production in 1984. Statistical information on acreage, production, exports and prices is presented, together with a short commentary on each commodity. It is divided into export crops, domestic crops and livestock. There are also sections on important agricultural inputs.

The figures given represent the best estimates available to date, and as such they supersede data published in previous reports. However, once again it must be emphasized that the data can be regarded as neither definitive nor final. Given the limited statistical resources of the Department and lack of systematic reporting outside the commercial/export sector, there is possibly a wide margin of error.

A wide variety of sources have been consulted in the compilation of this Report. This opportunity is taken to thank all individuals from government departments and private companies who provided information and comments, without which, publication of the Report would not have been possible.

Any comments, corrections or suggestions for improvement would be most welcome.

Produced by the Agricultural Information and Statistics Unit.

JULY 1985

PART ONE

WORK OF THE DEPARTMENT

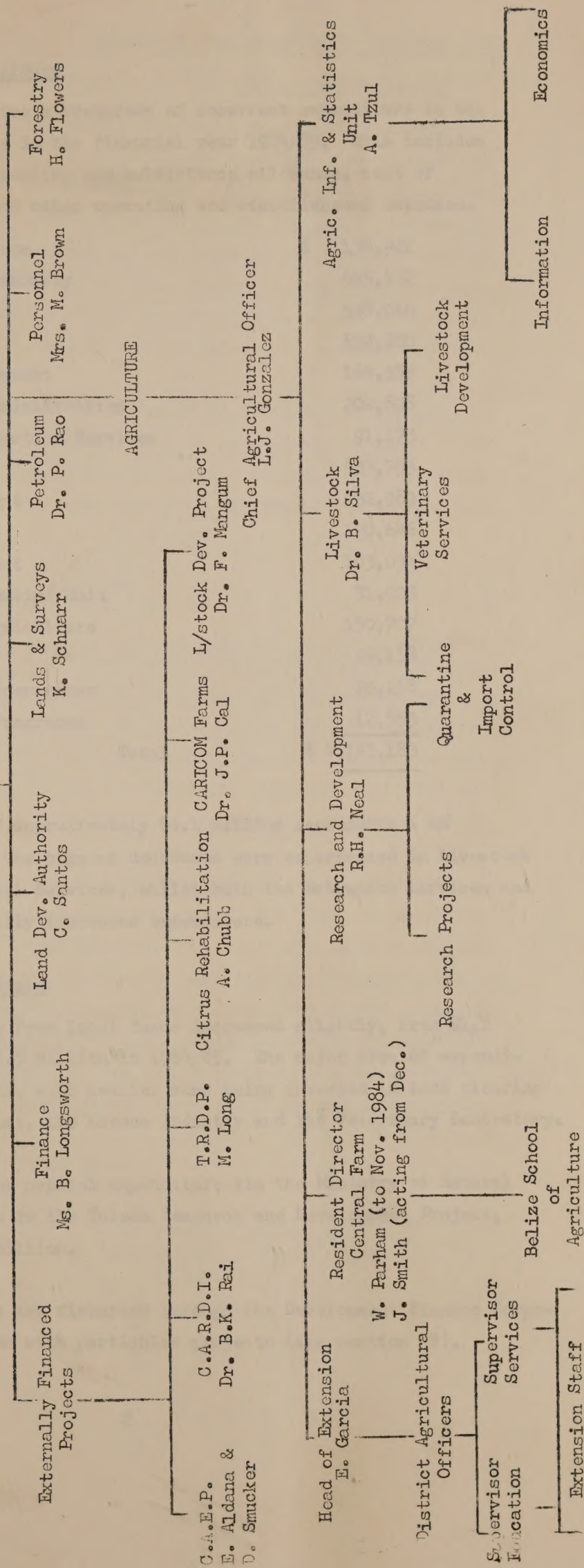
ORGANIZATIONAL CHART

MINISTER OF NATURAL RESOURCES

Hon. F. J. Marin (to Nov. 1984)

Hon. D. Lindo (from Dec. 34)

Permanent Secretary - J. V. Hyde



II FINANCE

2.1 Recurrent Expenditure

The figures below give a breakdown of recurrent expenditure in the Department of Agriculture in the financial year 1984/85. This includes personal emoluments, travelling and subsistence allowance, cost of materials and supplies and other operating and miscellaneous expenses.

General Administration	\$ 134,922
Land Development Authority	945,432
Mechanical Services	538,010
Extension Services	652,200
Research and Development	184,555
Research Station Administration	202,828
Quarantine and Inspection Services	91,173
Animal Health	453,793
Livestock Improvement	452,989
Pig Production	120,646
Forage Legume Project	103,094
Agricultural Information Unit	51,005
Belize School of Agriculture	150,707
Agricultural Show	29,158
Revenue Producing Operations	20,118
Medfly Prevention Programme	12,553
Total	<u>\$ 4,143,183</u>

The total figure of approximately \$4.1 million represents a 4% decrease over 1983/84. The biggest decreases were experienced in Livestock Improvement and Mechanical Services, whilst both the Extension Services and Animal Health substantially increased expenditure.

2.2 Capital Expenditure

Capital expenditure from local funds increased slightly, from \$1.2 million in 1983/84 to \$1.5 million in 1984/85. The major area of expenditure was land development, with smaller sums being invested in land clearing and agricultural equipment, the banana industry and the Veterinary Laboratory.

Overseas funding for capital expenditure via the Ministry of Natural Resources was restricted to the Toledo Research and Development Project, which amounted to \$0.6 million.

Other foreign funds are disbursed through the Development Finance Corporation, and in connection with particular projects (see section 1V).

III SERVICES PROVIDED BY THE DEPARTMENT

3.1 Extension Service

Considerable progress was made during the year in the upgrading of the Department's Extension Services, under the auspices of Phase 11 of the C.A.E.P. Project. With implementation of the National Extension Improvement Plan, two new positions have been established in the District Offices -- Supervisor of Education and Supervisor of Services. The decentralization programme went ahead, made possible by the provision of transport and housing for extension officers in their zones. The National Extension Council continues to monitor implementation of the Plan.

Another new emphasis in Extension is on in-service training for officers, and a total of sixty-three such activities were conducted during the year. These included sessions in pasture improvement, soil management, group teaching methods and conducting field demonstrations.

E. GARCIA
BELMOPAN

3.2 Agricultural Information and Statistics Unit

The Information Unit plays an important role in the improvement of the Extension Services, by providing technical and other back-up information that can assist extension officers in their education activities. In addition the Unit is responsible for gathering information on agricultural production in the districts and making it available as necessary.

A complete list of all past publications has been compiled, and a total of 13 new leaflets and 23 reprints published. The weekly radio programme continues to be broadcast, and since October a daily programme, "Your Agricultural Update", introduced. Groundwork was laid for the taking of a National Agricultural Census in 1985, a collaborative undertaking between the Ministry of Natural Resources and the Central Statistical Office. With technical assistance from the F.A.O., the questionnaire was drawn up and a pilot census implemented through the extension service.

A. A. TZUL
BELMOPAN

3.3 Veterinary Service

The Ministry provides veterinary services from clinics in Orange Walk, Cayo and Belize City, supported by Animal Health Assistants within the extension service. The Central Veterinary Investigation Laboratory in Belize City became fully operational in 1984, providing diagnostic and other services. Plans were made for the establishment of a biological and chemical residue-testing section in the laboratory, for control of meats destined for the domestic and export markets. In the meantime, residue testing is done on a planned and regular basis by laboratories in Honduras and Costa Rica.

There were no major outbreaks of disease in 1984. Among the reportable diseases were Vesicular Stomatitis (1 outbreak), rabies (4 outbreaks), Newcastle disease (1 outbreak) and several cases of hog cholera.

DR. B. SILVA
BELMOPAN

3.4 Quarantine and Inspection Service

There were no major changes in Quarantine and Inspection Services for crop and livestock products. The control of imports of meat and plant products was streamlined. A procedures manual was prepared giving detailed guidelines on the responsibility of quarantine inspectors, with emphasis on the public relations aspects of their work.

DR. B. SILVA - Livestock and
R. NEAL - crops
BELMOPAN

3.5 Crop Protection Service

The plant pathology and entomology laboratories at Central Farm were used for the diagnosis of numerous samples of plant material brought by extension officers and farmers. Plant protection extension activities in 1984 were partially merged with the National Agricultural Pest Survey (NAPS) which involved over 100 farm visits. Assistance was given in the form of pest identification and control recommendations. A Plant Protection Workshop was conducted.

J. NOVELO - Entomologist and
J. MERTELY - Pathologist
CENTRAL FARM

3.6 Agricultural Chemistry Laboratory

The laboratory continued to provide a service to farmers, research organizations and various agro-industries in the form of analysis of feeds, soils, tissue etc.

The laboratory reinstituted the investigative sampling of feeds from manufacturers. Labelling was inadequate and analysis revealed that some feeds did not contain the purported levels of nutrients. Other work included making preparations for submission of a proposal for a national soil and land use survey. The laboratory routinely supplies fertilizer recommendations on receipt of soil samples, and participates in the dissemination of information through pamphlets, radio talks, lectures and workshops.

M. HOLDER
CENTRAL FARM

IV AGRICULTURAL RESEARCH AND DEVELOPMENT

4.1 Ministry of Natural Resources, Central Farm

a) Agronomy Division

Upgrading of VS550 and Belgold 83 corn varieties continued in collaboration with CIMMYT. The objectives were to screen for best plant characteristics and flint type grain for improved storage qualities. Bean-screening trials were held in collaboration with CIAT, and twenty one bush and ten vine type beans selected as well-adapted to local conditions.

Techniques in onion production were developed with assistance from CARDI; two varieties were recommended to farmers. Curing and storage studies are underway. Panama Tall and Malayan Yellow Dwarf coconuts were planted. The objective is to obtain an F_I generation through hybridization, which tolerates lethal yellowing disease.

J. SMITH AND J. NOVELO
CENTRAL FARM

b) Livestock Section

Beef cattle breeding programmes were conducted including cross-breeding with Charbray, Costa Rican, Brahman and Red Poll breeds. These aim to supply improved breeding stock for sale to farmers. A pig breeding programme using Durocs, Yorkshires and Hampshires has similar objectives. An artificial insemination programme was conducted on all dairy cows to improve milk production.

On-farm trials were conducted to investigate the response of pigs to a daily feed supplement of meat and bone meal.

R. MONTERO
CENTRAL FARM

c) Plant Protection

A National Agricultural Pest Survey (NAPS) was undertaken, to collect and identify new insect pests and plant pathogens in Belize. Survey trips were made throughout the country and over 350 species of insects were collected and sent overseas for identification. Approximately 20 new plant pathogens were discovered; final reports are currently under preparation.

d) Forage Legume Project

Work continues in the collection of data from the early stage assessment trials on the vertisols and the lowland Pine Ridge Soils. The trials include fertilizer strips and legume strips in native pastures, grass adaptation and grass-legume associations. Demonstration trials of different legumes are also being maintained in preparation for farmer visits.

Preliminary analysis of data from the Monkey Bay grazing trials indicated that steers in the fertilized native pasture had the best average live weight gain. The Monkey Bay Vegetation Study was completed and the results are being summarized.

H. PARHAM
CENTRAL FARM

4.2 Caribbean Agricultural Research and Development Institute

CARDI screened a large number of varieties of each of soybean, mustard, sesame, sunflower, peanut, 'desi' and 'kahuli' chickpea, dry pea, sweet and pop-corn, and onion. Promising varieties of soybean, mustard, sesame, peanut and onion have been identified and a soybean variety AGS-29 is ready to be released to the farmers for cultivation. This work is aimed at agricultural diversification to conserve and earn foreign exchange and to increase the income of farmers. Two guides for the production of cabbage and peanut were prepared and published in co-operation with CAEP and the Ministry of Natural Resources. A field day was held to acquaint farmers with the new crops.

DR. RAI
CARDI

4.3 Caricom Farms Ltd.

Caricom Farms continued in its research to test the technical and economic feasibility of commercially producing rice in rotation with cowpeas, soyabeans and beeflivestock in the Belize River Valley. A high input maize system is also being tested. All crop operations are fully mechanized. Research support is provided by CARDI.

J. McGANN
CARICOM FARMS

4.4 Toledo Research and Development Project

Emphasis has shifted from lowland to upland research. The upland programme aims to improve the utilization of available land and increase farm incomes for milpa farmers. The focus of work has been with the upland rice crop on first year land and husbandry of corn in conjunction with a legume cover crop. Work with cocoa began in 1983 with a number of establishment trials under varying shade regimes.

Lowland rice-screening trials were continued, along with experiments in herbicide and fertilizer use. Engineering research included testing the viability of a package of pedestrian controlled rice equipment and starting a trial on the rehabilitation of abandoned rice lands. A survey was conducted to assess land pressure in Toledo, and budgets prepared to indicate the profitability of corn and rice recommendations.

M. LONG
T.R.D.P.

4.5 Belize Livestock Development Project

This project, jointly funded by the Government of Belize and U.S.A.I.D., commenced in July 1984 and will last for four years. The Project has the overall objective of improving small and medium sized farmers' production efficiencies in the rearing of livestock, and expanding market outlets for these products primarily through import substitution. The program of work includes six components: (1) swine improvement, (2) pasture improvement, (3) dairy industry development, (4) pork and beef processing, (5) policy analysis and formulation and (6) equipping a meats testing laboratory.

Results during 1984 included establishing working linkages with research, extension and agricultural clientele groups, completing individual work plans and initiating development programs. Groundwork was laid for construction of a 400 gallon per day dairy plant, and for improving meat processing capabilities. Proposals were offered for reorganizing and improving Government swine-

rearing facilities at Central Farm, Yo Creek, Stann Creek and Belize. Pasture improvement and management programs were developed for Central Farm, Yo Creek and Richmond Hill.

The Project also includes a long-term training component, with three participants being placed in U.S. Universities during 1984.

DR. F. MANGUM
BELMOPAN

4.6 Caribbean Agricultural Extension Project

As mentioned in Section 3.1, CAEP has assisted the Ministry in implementing the National Extension Improvement Plan (NEIP). Organisation and management activities included writing and implementing work plans, job descriptions and holding performance development conferences.

In addition to in-service training activities, two scholarships were given to B.S.A. and one to the U.W.I. Diploma in Extension course.

Housing repair and construction in all districts, the procurement of five pick-up trucks and 25 motorcycles and field equipment gave officers mobility and tools to work with in their educational programmes. Reference and other materials were supplied to the districts and AISU.

During the year the NEIP was revised to serve as a guide for future activities. The project is due to finish in mid-1985.

E. ALDANA AND D. SMUCKER
BELMOPAN

4.7 Coconut Rehabilitation Project

The project closed in mid-1984, as funding was not available for a third phase. The second fertilizer application programme proceeded however, administered by the District Agricultural Officers. In an attempt to produce Lethal Yellowing resistant hybrid nuts a private coccol of bearing Malayan Dwarf coconuts was made available for a hand pollination programme using locally selected pollen.

4.8 Citrus Growers' Association

During the year, the C.G.A. Research and Extension Unit improved its extension activities and commenced a modest research programme. Field trial/demonstration plots were maintained to show the beneficial effects of using fertilizers and herbicide. With the increasing demand for planting stock, an upgrading of nurseries has taken place with initiation of a voluntary nursery registration scheme. Stricter phytosanitary control of citrus material has been called for at all ports of entry into Belize.

F. GARCIA
C.G.A.

V AGRICULTURAL EDUCATION

5.1 Belize School of Agriculture

In September 1983 the Board of Directors decided to discontinue the certificate course and to operate instead a two year diploma course.

In 1983/84, 21 students successfully completed the first year. Nineteen certificate graduates were accepted in the second year to complete the diploma in agriculture. Seventeen students were successful. To date a total of 107 graduates have been awarded the certificate in agriculture and 38 the diploma.

The students continue to undertake practical attachment in all ten sections at Central Farm and to do projects in the mornings. Students attend classes in the afternoon. Evenings are spent in sporting activities.

A memorandum of agreement was signed between the Minister on behalf of B.S.A. and Michigan State University. As a result, a team of professors from MSU visited the school and is preparing a proposal for the upgrading of the school; this will be submitted for consideration to funding agencies. U.K. aid provided an Agricultural Education Advisor who will assist in the upcoming year in making recommendations for curriculum and facilities improvement.

In addition the school hosted several workshops and seminars for farmers and personnel from the Department of Agriculture.

MARLA HOLDER
B.S.A.

VI AGRICULTURAL COOPERATIVES

A total of almost 70 agricultural cooperatives are registered throughout Belize. These are actively involved in production and marketing of various agricultural commodities as well as input supply and credit provision. Seven new cooperatives were registered in 1984: The New River Farmers, Cafetaleros Benqueños, Belize District Livestock Producers, Belize Federation of Agricultural Cooperatives, Cooperativa Agricola Santa Martha, Corozal Vegetable Growers and San Roman Farmers.

A three year educational programme for agricultural cooperatives was launched in 1984. It is organized jointly by the Government of Belize, CIDA and the co-operative societies. Regular training sessions are being held covering cooperative ideology, organization and management, business techniques and technical matters.

N. AUGUSTINE
REGISTRAR OF COOPERATIVES

VII AGROMETEOROLOGY

A research plot near the International Airport was established and a co-operative programme between the Agriculture and Meteorology Departments was drawn up with several project proposals. Two projects which are already underway are:

1. A phenological field research study on selected crops, the main purpose of which is to identify and relate crop development stages to seasonal variability in local climate;
2. The formation of National Agrometeorological Situation Committee (NASC) to monitor and assess growing season progress based on weather data.

In order to continue to improve services to agriculture, the Agrometeorology section of the Meteorology Dept started to develop a data base of weather data and a repertoire of computer programmes to be included in a subsequent management information system. The latter will assist farmers by providing diverse agricultural information on such subjects as: crop growth and crop yield, drought and rainy season build up, weather related plant disease and pest outbreaks, irrigation scheduling and livestock stress assessment.

Agricultural officers throughout the country continue to assist in weather data collection. This helps in the provision of information to many agricultural users through direct consultation, publications and through seminars/workshops. An example is the workshop on Plant Protection held at Central Farm in April 1984 in which the Agrometeorology staff participated.

D. T. SMITH
BELIZE WEATHER BUREAU

VIII Agricultural Legislation

No new agricultural legislation was enacted in 1984.

PART TWO

SUMMARY OF STATISTICS

I WEATHER

I.I. 1984 Rainfall at District Stations (inches)

Months	Corozal (Sta Cruz)	O/Walk San Pablo	Belize (Airport)	Cayo (C/Farm)	S/Creek (Melinda)	Toledo (P/Gorda)
J	0.76	0.53	3.66	4.35	7.70	6.51
F	1.68	3.44	6.35	2.87	10.12	4.03
M	1.37	1.36	2.20	0.73	2.22	1.84
A	0.00	0.00	0.06	0.30	0.05	1.46
M	8.61	6.69	8.10	2.71	18.75	22.63
J	10.81	8.86	14.74	8.42	14.12	32.64
J	10.83	12.16	9.25	13.02	24.60	22.51
A	9.07	6.59	9.96	4.33	7.98	27.58
S	3.75	5.05	8.21	5.48	10.85	27.86
O	7.68	6.17	12.15	7.91	14.48	11.14
N	1.82	0.98	3.79	+3.54	6.68	3.97
D	5.15	3.22	6.80	+9.14	10.78	16.11
TOTAL	61.53	55.05	85.87	62.80	128.23	178.28

+ Rainfall data were not recorded at Central Farm in November and December.
Spanish Lookout has therefore been used as a substitute.

1.2 Mean monthly rainfall at District Stations (inches)

Months	Corozal	O/Walk	Belize	Cayo	S/Creek	Toledo
No. years	38	16	21	12	42	40
J	2.42	2.37	4.05	3.99	5.46	6.51
F	1.42	2.23	2.57	2.37	3.22	4.11
M	0.80	1.15	2.21	1.77	2.35	2.94
A	1.62	1.04	2.11	0.81	2.64	3.21
M	4.94	3.36	3.21	3.32	6.46	8.71
J	8.59	8.86	9.85	8.36	10.58	24.80
J	7.45	8.52	10.63	8.25	11.64	30.00
A	5.88	5.84	7.29	6.25	9.27	24.42
S	9.21	8.68	9.89	7.77	12.49	21.51
O	6.44	6.40	10.41	7.54	11.82	13.00
N	3.84	3.46	6.70	6.29	7.97	8.28
D	2.67	3.18	5.33	4.97	6.39	7.54
TOTAL	55.28	55.09	74.25	61.69	90.29	155.03

Source: Climatic Records for Belize, Belize Weather Bureau, District Agricultural Officers.

1.3 Commentary

Belize, Cayo and Toledo districts all experienced rainfall well above average in 1984.

Cool weather at the start of the year damaged the beans crop in Toledo, and caused premature fruit drop in mangoes in Stann Creek and Cayo districts. The very dry conditions in March and April were good for the harvesting of off-season crops and land-clearing, but exacerbated cane fires in the north. Early, heavy rains in May through June brought further problems. The cane grinding season was brought to a premature close, and burning of milpas and mechanical planting was hindered throughout the country. For the remainder of the year, conditions were fairly favourable. However, heavy rains in September and October in Stann Creek, Toledo and Cayo held up mechanical harvesting. Also, rains in December in Toledo promised to reduce bean yields by encouraging *fungus* attack.

II SUGAR

2.1 1983/84 Production

Factory	Tons of cane ground	Tons of Export	Sugar Made Local	Tons of Molasses	Tc/Ts
Tower Hill	626,116	61,148	..	19,789	10.24
Libertad	396,086	34,441	5,936	12,811	9.81
TOTAL	1,022,202	95,589	5,936	32,600	10.07

2.2 Comparative Statistics

	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>	<u>1983/84</u>
Acreage (reaped)	60,000	61,000	59,300	59,000
Tons cane delivered	970,100	1,095,500	1,131,986	1,022,202
Tons sugar prod.	97,724	105,980	114,278	101,525
Tons molasses prod.	31,980	37,704	37,470	32,600
Tc/Ts ratio	9.92	10.34	8.91	10.07
Av. Cane price \$/ton	56	37	38	38
<u>Exports January - Dec.</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Tons sugar	90,269	98,146	109,110	95,576
Value sugar \$million	85.3	65.7	70.9	62.9
Average price \$/ton	945	669	650	658
Tons Molasses	27,456	35,094	35,672	28,683
Value molasses \$million	2.4	1.8	1.2	2.1

Sources: Belize Sugar Board reports, Dept. of Agriculture Annual Reports, Sugar Statistics of Belize 1980 - 1983 (Belize Sugar Board).

2.3 Commentary

Deliveries of cane in 1983/84 were down by 10 percent on the 1982/83 level, due to a small reduction in area reaped together with depressed yields per acre. The latter can be attributed to the impact of smut, which is still present in some 12,000 acres; the area rehabilitated with smut-resistant varieties stood at approximately 19,000 acres at the year-end. There was no major froghopper infestation. Heavy rains in June and July brought the crop to an early close, with the grinding seasons at the factories being as follows:-

	<u>Season 1983/84</u>	<u>Duration 1983/84</u>	<u>Duration 1982/83</u>
Libertad	7th Dec to 12th July	220 days	243 days
Tower Hill	4th Jan to 8th June	156 days	164 days

The most critical factor affecting the sugar industry remains the world market situation which continued to deteriorate in 1984. As a consequence of global over-supply, world market prices continued to fall, reaching a 12 year low of US. 5¢ /lb by June. World sugar balances showed stocks at more than 30 million tons at the end of the 1984 season. This, coupled with a contraction of U.S. demand due to substitution of artificial sweeteners and High Fructose Corn Syrup for sugar, and a forecast production surplus for 1984/85, means little prospect of an upturn in prices.

Negotiations during the year on a new International Sugar Agreement (to replace the one expiring at the end of 1984) failed to produce agreement on economic clauses, so no I.S.A. quotas were issued. Belize received preferential prices for about 30,000 tons of sugar exported under the U.S. quota, and 41,000 sold to the EEC, the remainder being sold on the world market. This resulted in 1984 cane prices of \$37.44/ton at Tower Hill and \$38.65/ton for the better quality cane at Libertad.

Discussions continued between the Government of Belize and Tate and Lyle on the sale of Belize Sugar Industries to Belizean interests, and how the future of the industry can best be safeguarded.

Some 6,000 tons of sugar (plantation white and brown) was consumed locally, valued at \$3.3 million, as follows:-

	Industrial	Domestic	Total
Tons sugar consumed	425	5,511	5,936

In addition, 1300 tons of molasses was locally consumed.

III CITRUS

3.1 1983/84 Production

<u>ORANGE</u>	Belize Food Products (BFP)	Citrus Company of Belize (CCB)	Total
Fruit delivered (90 lb. boxes)	580,306	544,102	1,124,408
<u>Manufactures</u>			
Frozen concentrate (U.S. gallons)	448,877	423,800	872,677
Orange oil (lbs)	80,899	256,233	337,132
Orange squash (U.S. gals)	-	10,840	10,840
<u>GRAPEFRUIT</u>			
Fruit delivered (80 lb boxes)	137,337	174,332	311,669
<u>Manufacture</u>			
Frozen concentrate (U.S. gallons)	84,552	98,800	183,352
Grapefruit oil (lbs)	7,195	16,345	23,540
Grapefruit squash (US. Gals)	-	3,962	3,962
<u>Prices to growers (\$/Box)</u>			
Orange	10.75	10.65	
Grapefruit	2.85	2.75	

3.2 Exports Jan - Dec 1984

	Orange conc (gals)	Orange oil (lbs)	G/Fruit conc (gals)	G/Fruit oil (lbs)
B.F.P. Quantity	436,674	73,853	108,518	0
Value (\$BZ)	8,603,454	79,291	1,271,266	0
C.C.B. Quantity	378,508	252,533	100,828	13,978
Value (\$BZ)	8,217,027	269,554	1,328,534	23,555
Total Quantity	815,182	326,386	209,346	13,978
Value (\$BZ)	16,820,481	348,845	2,599,800	23,555

3.3 Comparative Statistics

	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>	<u>1983/84</u>
Boxes orange ('000)	1,109	1,063	1,058	750	1,124
Boxes grapefruit ('000)	408	586	703	178	316*
Total boxes ('000)	1,517	1,649	1,761	928	1,440
Ave. price orange \$/box	6.07	4.93	5.30	6.52	10.70
Ave. price G/Fruit \$/box	4.43	4.30	2.84	2.60	2.80
Value of exports (1980 - 1984) BZ\$ '000	13,558	14,229	14,847	12,639	19,793

* This includes 5,000 boxes of the Citrus Growers Association clipfruit which was exported as fresh fruit to the European market.

Source : Returns from Citrus Companies, Dept. of Agriculture Annual Reports, Central Statistical Office.

3.4 Commentary

The 1983/84 crop was a record one for oranges, with deliveries to the two factories once again surpassing the million box mark. Grapefruit deliveries picked up over the very low 1982/83 level, as improved prices resulted in the full crop being harvested.

Grapefruit still represented only about one-fifth of the total citrus crop, but accounts for a higher proportion of acreage. Total acreages are estimated at 3,000 acres of bearing grapefruit, 7,000 acres of bearing oranges and 2,000 acres of young oranges. The price differential continues to increase. Average price for oranges jumped by 64% to \$10.70 per box, whilst grapefruit prices experienced a modest increase to only \$2.80 per box. At such prices, growers can net at least \$1,500 per acre of oranges.

World market price for orange concentrate (and to a lesser extent grapefruit) has been artificially inflated by the freak occurrence in Florida of consecutive freezes. In addition, the Caribbean Basin Initiative agreement, instituted in early 1984, has enabled Belize to maintain a competitive edge over other exporters to the U.S.A. This allows for exemption from payment of U.S. \$2.50 duty per gallon of concentrate. A good market also exists in Trinidad.

Local sales of squash, processed by C.C.B., were as follows:

	Orange Squash	Grapefruit Squash
Quantity (gals)	10,840	3,962
Value (BZ \$)	135,500	48,535

During the year, shares in the processing facilities at C.C.B. went on sale; fifty percent were bought by the Citrus Cooperative of Trinidad, and the remainder were taken up by a small number of prominent Belizean growers. Competition between the two factories for growers' fruit contributed to the increase in price over the level set by the Citrus Price Formula (1982).

The CDC/DFC loan programme continued to disburse funds to assist growers. Ninety-nine loans have been approved and are under implementation for the expansion and rehabilitation of 1975 acres. This comprises rehabilitation of 1,611 acres oranges and replanting/expansion of 364 acres, accounting for \$1.5 million. During the first 2 years of the programme priority has been given to smallholders, but as of January 1985 all members of the Citrus Growers' Association were eligible to participate.

IV BANANAS

4.1 1984 Production

	1st class	2nd class	9 Hand packs	Total
Exports (41.5 lb boxes)	481,086	64,064	9494 ⁺	554,644
Price (BZ\$/box)	12.98	8.01	5.30	

⁺ This represents 14,386 Nine Hand Pack boxes, converted to standard boxes using a conversion factor of 0.66.

4.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Acreage (production)	9,560	1,600	1,630	1,558
Boxes exported	549,275	523,696	530,797	554,644
Value (BZ \$'000)	4,311	4,265	5,426	6,617
Ave. price (\$/box)	7.85	8.14	10.22	11.93

Source: Banana Control Board, Dept. of Agriculture Annual Reports, Central Statistical Office.

4.3 Commentary

During 1984, the Banana Control Board continued to manage its own farms at Cowpen and Bladen, which comprise 950 acres, as well as 430 acres of tenant farmers' land. The remaining area (495 acres) is in the hands of tenant farmers and independent producers. The Board did not undertake any new planting in 1984, but expansion did occur in the South Stann Creek area (approximately 150 acres).

Acreage declined in 1984, due to some of the farm at Cowpen going out of production. However, production increased by nearly 5%, reflecting some improvement in the drainage system. Heavy rain, wind and flooding resulted in estimated losses of 14,000 boxes, and waterlogging further reduced yields. Monthly shipments ranged from 28,900 boxes in January to 63,800 in December.

All exported produce is marketed by Fyffes in the U.K. Prices received were higher than in 1983, and consequently export earnings were up by 22%. For the first time, "Nine Hand Packs" were shipped, containing short-fingered fruit that otherwise would be unacceptable to the market. Fruit which cannot be shipped for reasons of quality and the strict time limits for barging to Honduras is sold domestically, fetching around \$5.00 per bunch (an estimated 13,000 boxes in 1984).

Negotiations were underway during the year between the Executive Committee of the Banana Control Board, the Government of Belize and Riversdale Services Ltd. on the restructuring of the industry, in an effort to improve efficiency of operations. These aimed at the transfer of Board lands and certain Board functions to private hands, and were concluded early in 1985.

V COCOA

5.1 1984 Production

Total acreage	575
Bearing acreage	366
Total production wet beans (lbs)	352,195
Total production dry beans (lbs)	120,395
Purchases from farmers - wet beans (lbs)	1,324
Purchases from farmers - dry beans (lbs)	1,900
Price to farmers (\$/lb dry beans)	1.70

5.2 1984 Exports

Quantity (lbs)	122,824
Value (BZ \$)	272,183

5.3 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Exports (lbs)	9,100	39,000	107,500	122,800
Value (BZ \$)	18,182	72,228	185,980	272,183
Ave. price (\$/lb)	2.00	1.85	1.73	2.22

Source: Hummingbird Hershey Ltd.

5.4 Commentary:

Production of wet beans from Hummingbird Hershey's 366 acres of "developed" cocoa plantation (older than 5 years) was up by 32% in 1984 to approximately 350,000 lbs. Dry bean production increased only 13%, as a result of higher moisture content. Each year more trees are coming into production and yields are expected to stabilize at around 1200 lbs dry beans per acre, at 10 years after establishment.

In the latter part of the year, Hershey embarked on a shade adjustment programme, thinning out shade for the older trees, as well as improving pruning techniques. This is expected to have a significant impact on yields in the coming seasons. The pod and bean handling equipment at the plant was redesigned and wood-burning furnaces and drying beds installed. Processing capacity now stands at 12000 lbs per day (wet beans).

Commercial production of cocoa is rapidly expanding amongst small farmers in the south, to take advantage of the guaranteed market at Hershey. However, few of the trees have yet come into production, so sales to Hershey (at \$1.70/lb dry beans and \$0.60/lb wet beans) are still on a very limited scale. Fifteen cocoa groups, consisting of an average of 12 farmers each, have been formed in the Toledo District, to facilitate the cocoa expansion programme. Hershey distributed approximately 240,000 improved seeds during 1984, which is sufficient to establish some 550 acres.

Prices on the world market were volatile, due to uncertainty over the size of the world cocoa crop in relation to consumption. However, prices were generally higher than in 1983. Hummingbird Hershey sells by contract to Hershey Foods in the U.S.; the contract price operating in 1984 was U.S. \$1.18/lb.

VI MANGOES

6.1 1984 Production

Export ('000 lbs)	1,176
Local ('000 lbs)	160
Total ('000 lbs)	1,336

6.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Exports (tons)	nil	nil	755	525
Value (BZ \$million)			1.8	1.3

Source: Tropical Produce Co.

6.3 Commentary

Production of mangoes for export to the USA is confined to a single farm in the Toledo District. Potential production from the 1300 acre farm is estimated at nearly 5 million pounds, but adverse weather conditions in recent years have consistently prevented output from reaching this level

In 1984, heavy rain in February caused a major loss of blossom on the trees. However, successful control of fungus meant that a reasonable crop could still be harvested for export, valued at \$1.3 million. In addition, a small quantity of mangoes was sold on the domestic market at \$15 per 60 lb. bag.

The local mango crop, concentrated in Stann Creek and Corozal districts, was not a good one.

VII HONEY

7.1 1984 Production

Cooperatives in the	Honey Deliveries
<u>Belize Honey Producers' Feb.</u>	<u>lbs.</u>
Northern (Corozal)	139,177
Orange Walk	146,437
Lucky St. Ann (Belize)	5,790
Euri (Cayo)	49,128
Southern (Toledo)	<u>70,729</u>
Sub total	411,261

Non-Federation Cooperatives

Western (Cayo)	103,100
Stann Creek	55,600
Sub-total	<u>158,700</u>
Total	<u>569,961</u>

7.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Production for export ('000 lbs)	476	440	543	570
Value of exports (BZ \$'000)	526	342	369	484
Producer price (cents/lb)	58	56	60	60

Source: Federation and individual cooperatives, Dept. of Agriculture
Annual Reports, Central Statistical Office.

7.3 Commentary

The 1984 honey flow was again good, with production for export slightly exceeding the 1983 level. There were no major outbreaks of disease. Towards the end of the year, isolated incidents of poisoning from insecticide spraying in Cayo and Belize Districts were reported, but these were not of great significance.

Honey is exported to markets in France and the U.K., where it commanded an average price of US \$850 per metric ton. Honey production for local consumption and for feeding is estimated at 62,000 lbs.

There is some concern about the expected arrival in Belize of the Africanized Bee by the end of 1985, which could be a threat to the honey industry. These bees display strong defensive behaviour when disturbed and swarm more frequently than European bees. However, with appropriate management techniques, they need not present a danger. Consequently, an education campaign has been designed, for implementation in 1985, to prepare beekeepers to make the necessary changes in management.

VIII RICE

8.1 1984 Production

	Acreage	Production (⁰ 000 lbs)
Corozal	40	60
Orange Walk	590	885
Belize	520	780
Cayo	390	660
Stann Creek	550	990
Toledo	2600	3900
District subtotal	<u>4690</u>	<u>7275</u>

Big Falls Ranch

planted November 1983	983	3310
planted June 1984	<u>552</u>	<u>1922</u>
BFR subtotal	1535	5232
Total	6225	12507

8.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
District acreage (⁰ 000 acres)	5.3	5.4	5.1	4.7
District production (m. lbs)	10.9	9.7	7.6	7.3
Total acreage (⁰ 000 acres)	9.8	8.2	5.9	6.2
Total production (m. lbs)	23.9	17.8	9.2	12.5
Marketing Board Max. price (\$/lb)	26	26	24	24

Source: District Agricultural Officers; Big Falls Ranch

8.3 Commentary

Early rains hindered planting of rice and encouraged weed growth. Consequently, acreage under rice in the districts contracted in 1984 by 400 acres and estimated production was down to 7.3 million lbs. However, this was more than compensated by increased production from Big Falls Ranch. Two crops were harvested during the year, yielding a total of 5.2 million lbs, at an impressive yield of 3400 lbs/acre.

Toledo continues to be the major rice-producing district, but has seen a major turnaround in methods of production employed. Previously, over two thirds of the acreage was planted and harvested mechanically but this proportion has now reduced to less than a third. This can be attributed both to the earlier removal of subsidies on B.L.D.A. machinery hire rates, tighter control over work done on credit and to the unsuitability of the equipment for some of the rice-growing areas. Of the 600 acres prepared and planted mechanically in 1984, only 350 could be harvested, due to heavy infestation with wild rices. In addition, heavy rains at harvest time made some fields inaccessible.

National consumption requirements were satisfied by the importation of approximately 850,000 lbs of rice to supplement the domestic crop.

The sale of loose (bulk) rice is subject to a retail price control of 52 cents/lb, whilst packaged rice from Big Falls Ranch fetched a whole-sale price of 76 cents/lb at the end of 1984

IX MAIZE

9.1 1984 Production

	Off season 1983/84		Main season 1984	
	Acres	Production '000 lbs	Acres	Production '000 lbs
Corozal	150	225	2525	3030
Orange Walk	590	700	4520	4070
Belize	35	50	570	680
Cayo	3600	5400	10200	13670
Stann Creek	35	20	540	500
Toledo	1090	1090	5155	6190
	<u>5500</u>	<u>7480</u>	<u>23610</u>	<u>28140</u>
Total acreage for 1984			29,110	
Total production for 1984 (m. lbs)			35.6	

9.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Acreage ('000 acres)	28	27	26	29
Production (m. lbs)	47	47	39	36
Marketing Board max. price (£/lb)	24	18	18	18

Source: District Agricultural Officers

9.3 Commentary

The 1983/84 off season crop was a large one, with more than double the 1982/83 acreage planted, and fairly good yields achieved. Spanish Lookout alone produced nearly 2.5 million lbs, with a record average yield of 2300 lbs/acre.

Early rains resulted in reduced planting for the main season crop, and meant that milpas could not be properly burnt. Infestation by army worm and froghoppers was reported in a number of instances. This contributed to reduced yields throughout the country. The Spanish Lookout average yield of 1600 lbs/acre, under mechanised conditions and improved management, can be taken as a maximum. Elsewhere, estimated yields ranged from 800 - 1200 lbs/acre. In Orange Walk some 300 acres were destroyed by flooding.

Consequently, estimated national production was down to 35.6 million lbs for the year. This made necessary the importation of around 4 million lbs of corn to fulfil domestic requirements particularly in the feed industry. Imports peaked in February and August, prior to the new harvests coming in. The last time substantial imports were made was in 1980, when estimated domestic production was 41 million lbs.

The retail price of corn was mostly between 20 and 25 cents/lb. In the northern districts, it went up to 30 cents/lb in mid-year.

X BEANS

10.1 1984 Production

	Acreage	Production ('000 lbs)
Corozal	550	170
Orange Walk	400	160
Belize	55	22
Cayo	3400	1700
Stann Creek	50	22
Toledo	190	760
TOTAL	4645	2834

10.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Acreage ('000 acres)	7.5	7.0	6.9	4.6
Production (m. lbs)	3.8	4.0	3.4	2.8
Marketing Board max. price (¢/lb)	100	90	50 ⁺	50

Source: District Agricultural Officers

+ In 1983, Marketing Board offered 70 cents/lb at the beginning of the season but then reduced the price to 50 cents/lb, for the bulk of the crop.

10.3 Commentary

As expected, production of beans in the 1983/84 season was considerably lower than in 1982/83, with an estimated total output of 2.8 million pounds. This was a consequence both of reduced area planted and considerable losses due to web blight induced by cold and wet conditions early in the year.

Spanish Lookout began the year with stocks of over 400,000 lbs of red kidney beans on hand, as a carry over from previous harvests. Over half of this was exported to El Salvador in the early months of the year. The Mennonites also reduced their beans acreage to 1150 acres in 1984, just over half the 1982/83 level. Consequently, by the end of the year, stocks on hand were negligible.

The Marketing Board, offering a minimum guaranteed price of 50 cents/lb, handled only a very small proportion of the total R.K. beans harvest. On the open market, as a result of shortfalls in supply, retail prices ranged from 65 cents/lb to as high as \$1.15/lb.

Towards the end of the year, Marketing Board imported some 600,000 pounds of R.K. beans from the U.S.A. Some of these were made available through the Agriculture Department for farmers to purchase as seed for the upcoming crop. Marketing Board raised its advertised price to 65 cents/lb to encourage increased planting for 1984/85.

Cultivation of types of beans other than R.K. is on the increase, particularly in Cayo and the northern districts. Varieties such as black, bayo and pink beans give higher yields than the R.K. bean under Belizean conditions but have not yet gained widespread consumer acceptance.

XI OTHER CROPS

11.1 Sorghum

Production of sorghum increased again in the 1983/84 season, after declining in the previous year. The Mennonites at Shipyard in Orange Walk district, the country's major producers, reported a harvest of 2.5 million lbs. This was sold to local feed mills as a substitute for corn, and fetched between 15 cents and 20 cents per lb. Spanish Lookout resumed planting, after a break in 1982/83, with 270 acres yielding some 300,000 lbs. At a price of 10 cents per lb, the Marketing Board attracted sales of only 46,000 lbs in Cayo district.

11.2 Peanuts

The opening in June of a peanut butter factory in Santa Elena, Cayo, provided a long-awaited market for peanut growers. However, the plant still handled only a small proportion of the total crop, with 13,000 lbs being processed into roasted nuts and peanut butter between June & Dec. The factory buys at \$1.00 per lb. The majority of peanuts are still sold by vendors as roasted nuts at 50 cents per bag. Around 5000 lbs of nuts were also processed at Spanish Lookout, where purchase prices ranged from 65 cents to \$1.50 per lb.

Most farmers are cultivating Tennessee Red, but CARDI is now introducing some new varieties. Yields are estimated at an average of 1000 lbs/acre, with minimal use of inputs by most farmers. The largest acreage was planted in Cayo district (450 acres), with smaller quantities grown in both the northern and southern districts. The total crop was estimated at 300,000 lbs.

11.3 Vegetables

The year saw the formation of the Cayo Vegetables Producers' Association in an effort to rationalize production and hence avoid drastic price fluctuations. The Association comprises 64 registered members cultivating anything from 1/4 to 10 acres of vegetables. Considerable losses were incurred early in the year through dumping of cabbage which could not be sold in Belize City. Wholesale prices varied from 10 to 50 cents per lb for cabbage, 6 cents to \$1.00 per pound for tomatoes and 25 cents - \$1.75 per lb for sweet peppers.

A significant step was made in November when a prohibition was imposed on imports of cabbage, tomatoes and sweet peppers. By conducting a bi-monthly survey, the Association is able to advise the Ministry of Natural Resources on the domestic supply situation. This information is passed to the Ministry of Commerce and Industry which can then restrict imports accordingly. Monthly production by the Association for December 1984 was 50,000 lbs cabbage, 8000 lbs tomatoes and 6000 lbs sweet peppers.

Vegetables are also grown in the other districts, but on a smaller scale, for sale in the district towns and Belize City.

A project was established in Orange Walk for the export of canteloupes to the U.S.A. Despite problems from fungus disease, which reduced yields to 8-9000 lbs per acre, it was still possible to export substantial quantities valued at nearly BZ\$50,000.

XII MARKETING BOARD

12.1 1984/85 Purchases (lbs)

<u>Buying Centre</u>	<u>Rice Paddy</u>	<u>Corn</u>	<u>R.K. Beans</u>
Cayo	124,648	633,263	625
Toledo	3,493,370	536,605	115,981
Belize	4,067	-	-
	3,622,085	1,169,868	116,606
Average price received by farmers (¢/lb)	22.6	17.1	50.9

12.2 Comparative Statistics

(1st April - 31st March)

<u>Purchases (million lbs)</u>	<u>1981/82</u>	<u>1982/83</u>	<u>1983/84</u>	<u>1984/85</u>
Rice Paddy	6.3	4.1	3.1	3.6
Corn	5.5	0.6	0.4	1.2
R.K. Beans	0.6	0.5	0.07	0.1

Maximum prices (¢/lb) ⁺

Rice paddy	26	26	24	24
Corn	24	18	18	18
R.K. Beans	100	90	50	50

Source: Belize Marketing Board.

⁺ Prices quoted refer to the crops harvested in the first of the two years given.

12.3 Commentary

During 1984, the Marketing Board operated in the purchase and sale of crops at its centres in San Ignacio and Belmopan (Cayo), Big Falls and Punta Gorda (Toledo) and Belize City. Quantities purchased of all major commodities picked up somewhat from the depressed levels prevailing in 1983.

Rice paddy was bought at a premium price of 24 cents per pound for paddy at 14% moisture content and less than 4% foreign matter content, with a minimum guaranteed price of 16 cents per pound. The increase in the amount of milpa relative to mechanised rice produced in the Toledo district has resulted in an improvement in the overall quality of paddy purchased. Milled rice is sold at 50 cents per pound. Towards the end of the year, 850,000 pounds of white rice was imported from Guatemala and the U.S.A. for sale at 56 cents per pound.

Quantity of corn purchased tripled from the 1983 level, with prices ranging from 16 to 18 cents per pound through the year. Marketing Board traditionally handles only a very small proportion of the total corn crop, the majority being sold on the open market, or retained for domestic consumption and feed purposes. Selling price for corn was between 22 and 26 cents per pound.

Red Kidney beans were purchased in quantity only in the Toledo district. Volumes handled in the last two seasons have been much reduced over levels prevalent in the early 1980's, when higher prices were offered. Stocks of old damaged R.K. and other beans were disposed of as animal feed at 5 cent per pound during 1984. Late in the year, it was necessary to import some 600,000 pounds of R.K. beans, which were sold at 98 cents per pound both for consumption and as seed for the up-coming crop.

The Marketing Board also handled limited quantities of sorghum, annatto, spice seed and ginger, and mixed some animal feed at the complex in Belmopan.

XIII CONSUMPTION OF ANIMAL FEEDS

13.1 1984 Consumption (lbs)

Spanish Lookout	Feed shop 1	8,613,200
Spanish Lookout	Feed shop 2	11,127,800
Marketing Board (BMP)		169,000
Blue Creek		2,078,400
Shipyard		5,806,800
	Total	27,795,200

13.2 Comparative Statistics

	<u>1983</u>	<u>1984</u>
Total feed consumption (m. lbs)	30.2	27.8

Source: Individual feed producers.

13.3 Commentary

Sales of feed from the two shops at Spanish Lookout increased from 16 million lbs in 1983 to 20 million lbs in 1984. Elsewhere, feed consumption apparently dropped although, given the lack of systematic reporting of production, this could be due to incomplete coverage.

What is clear is that commercial feed production is virtually monopolized by the Mennonite Communities. At Spanish Lookout, predominantly corn is mixed, whereas in the north, particularly at Shipyard, a high proportion of sorghum is used. Prices paid to farmers ranged from 18 - 20 cents/lb for corn and 16 to 18 cents/lb for sorghum. The mills imported corn from Guatemala at times when local supplies were scarce.

XIV BEEF

14.1 1984 Production

	Cattle slaughtered	Beef production (lbs)
Corozal	498	174,300 +
Orange Walk	643	200,334
Belize	151	42,350 +
Belize Meats Ltd.	3418	1,238,156
Cayo	1068	373,800 +
Stann Creek	169	59,150 +
Toledo	89	31,150 +
Belmopan	<u>192</u>	<u>67,200 +</u>
Total	5198	2,238,156

⁺Where no dressed weights are available, beef production has been estimated at 350 lbs/head.

14.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Cattle slaughtered ('000)	6.4	6.0	5.8	6.2
Beef produced (m. lbs)	2.2	1.9	2.1	2.2
Live Cattle exported ('000)	0	.	3.5	3.3
Value (BZ\$ '000)	0	18	1238	1488
Beef exported ('000 ^{1/2})	148.0	0	4.9	0.8
Value (BZ\$ '000)	318.0	0	12.0	1.3

Source: Belize Livestock Producers' Association, Dept. of Agriculture Annual Reports, Central Statistical Office.

14.3 Commentary

Cattle producers continued to export live animals to markets in Guadeloupe and Martinique, with over 2100 head, valued at \$1.1 million, being shipped in 1984. Together with the 3400 heads exported in 1983, this bring total earnings from this market to \$2.2 million^{1/}.

Export prices ranged from 72 - 76 cents/lb live weight, whilst local butchers offered somewhat lower prices. Horses and sheep were also shipped along with the cattle.

In the latter half of the year, the Martinique market dried up largely as a consequence of the devaluation of the franc and the exhaustion of supplies of fattened steers. Meanwhile a new market opened for female stock in Mexico, and so the export trade continued, despite some concern about the possible depletion of the national herd. Nearly 1000 heads were exported earning \$340,000².

Footnote 1/: It should be noted that these figures were produced by the Central Statistical Office. They differ markedly from those issued by the Belize Livestock Producers' Association, which puts exports to Martinique/Guadeloupe at approximately 4600 heads (2300 in both 1983 and 1984). This had an estimated value of \$2.8 million.

2/: Again these are C.S.O. figures. The B.L.P.A. quotes 1440 heads with an estimated value of \$840,000.

Great potential exists for expansion of the domestic meat-processing industry for import substitution. Three of the major processors reported combined output of 5,250 lbs per week of beef and pork products, including various sausages, corned beef, beef patties, hams and bacons. This is well below capacity. Only small quantities of meat were processed at the Belize Meats Ltd. (BML) plant at Ladyville which was undergoing refurbishing ready for USDA certification in 1985. In late 1983, B.M.L. was granted a license to import choice cuts of beef which are not available locally, for supply to the British Army in Belize. Approximately 47,000 lbs, valued at BZ \$180,000 was imported from the USA in 1984.

XV PORK

15.1 1984 Production

	Pigs slaughtered	Pork produced ('000 lbs)
Corozal	419	31.4 +
Orange Walk	1110	153.6
Belize	6	0.5 +
Cayo	486	36.5 +
Stann Creek	78	5.9 +
Toledo	507	38.0 +
Belmopan	43	3.2 +
Belize Meats Ltd.	3602	304.9
Total	6251	574.0

+Pork production has been estimated at 75 lbs average dressed weight per pig slaughtered.

15.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Pigs slaughtered	6490	5773	5658	6251
Pork produced ('000 lbs)	365	332	495	574

Source: Dept. of Agriculture Annual Reports; Belize Livestock Producers' Association.

15.3 Commentary

Number of pigs slaughtered in the district slaughterhouses and at B.M.L. increased by 10% in 1984, having declined continuously since 1978. Pig-raising is gaining popularity as an alternative to cattle, which has experienced considerable marketing problems in recent years. Liveweight prices were in the region of 75¢ - \$1.00/lb.

A great many pigs, particularly in the Toledo district, continue to be raised using traditional methods. But with the supply of improved weaner stock from Government piggeries and other sources, commercial intensive pig rearing is being adopted by some farmers, with a consequent increase in average liveweight. Prospects are good for further expansion, especially given the current emphasis on local meat processing for import substitution.

Problems with mixed feed availability and price prompted some farmers to experiment with alternative feed sources such as vegetable surpluses, bananas and root crops. A hog cholera vaccination programme was undertaken in the north, following the diagnosis of several cases in Orange Walk.

XVI POULTRY

16.1 1984 Production

	Birds slaughtered	Dressed weight ('000 lbs)
Cayo (Red Creek)	394,970	1,216
Cayo (Spanish Lookout)	716,633	2,447
Orange Walk (Blue Creek)	334,665	1,086
Orange Walk (Shipyard)	491,610	1,833
Stann Creek (Kendal Jan. -May)	<u>30,000</u>	<u>90</u>
Total	1,967,878	6,672

16.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Birds slaughtered '000	1534	1789	1929	1968
Poultry meat '000 lbs	5216	6060	6477	6672
Liveweight price \$/lb	1.21	1.14	1.05	1.10
Wholesale price \$/lb	1.80	1.68	1.60	1.66

Source: Individual poultry producers

NOTE: Data are not available from the processing plant in Belize (Burrel Boom), therefore actual production is slightly higher than indicated above.

16.3 Commentary

Production of poultry meat by the major commercial concerns reported above increased slightly over 1983. In addition, there are many small-scale producers throughout the country who sell on the local market as well as the many thousands of backyard birds raised for domestic consumption.

There are indications that the domestic market has reached saturation. Output has levelled off and at least three of the smaller operations went out of business - one in Stann Creek and two in Belize rural. Nonetheless, prices were a little higher in 1984, having fallen continuously since 1981.

Chicks produced at the hatchery in Spanish Lookout were as follows:

Broilers	2,465,381
Layers	88,155
Turkeys	3,525
	2,557,061

This is approximately the same level as in 1983. Chicks are also imported from Chetumal; a permit was granted to import 10,000 birds every two weeks.

Outbreaks of fowl typhoid in the north and Newcastle disease at Spanish Lookout were given appropriate treatment.

The major constraint claimed by farmers to expanding production is the high cost and inadequate availability of ready-mixed feed. At Spanish Lookout, feed prices range from about \$24 to \$28 per 100 lb. bag, depending on the concentrate percentage.

XVII DAIRY

17.1 1984 Milk Production

Milk processed (lbs)	1,169,201
Cheese made (lbs)	15,500

17.2 Comparative Statistics

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Milk processed (lbs)	648,865	700,596	974,623	1,169,201

Source: Western Dairies, Spanish Lookout

17.3 Commentary

Production of packaged fresh milk at the dairy in Spanish Lookout has been steadily increasing over the past years to reach around 1 million lbs in 1984 (approximately 120,000 US gallons). This reflects increasing consumer acceptance of fresh milk over imported processed dairy products although, at a retail price of around \$1.10/pint, it is still something of a luxury commodity.

The milk is regularly distributed in Orange Walk, Belize City and Belmopan. In addition 154,000 lbs of milk were processed into cheese. Supplies of raw milk come from Mennonites, Central Farm and local farmers.

In Cayo district some 170 cows have been artificially inseminated with Holstein semen between January 1983 and December 1984, and this has resulted in the birth of 84 calves. The extension service is also working with selected dairy farmers to upgrade their husbandry practices. It is estimated that local farmers produced more than 1 million lbs of milk in 1984, which is consumed domestically or sold unprocessed. The USAID/GOB Livestock Project is working closely with the Macal dairy cooperative in San Ignacio towards the establishment of a pilot dairy plant with an initial capacity of 400 gallons daily.

Dairy plants are also under construction in Orange Walk (Shipyard), the other main dairying district, and in Belize district, but are not yet operational.

XVIII MACHINERY SERVICES

18.1 1984 Operations

	Hours Worked	
	Land Clearing	Harvesting
Corozal	783	-
Cayo	777	-
Stann Creek	469	-
Toledo	837	117
Total	2,866	117

Source: Belize Land Development Authority

18.2 Commentary

The Belize Land Development Authority was established in 1982 to provide mechanical services for agriculture. During 1984, a total of 2,866 hours of work was accomplished with the Caterpillar Tractors.

Hire rates were \$90.00 per hour. Work with rubber wheeled tractors was also undertaken at rates of \$18.00 per hour for the Massey Ferguson 135 and \$27.00 per hour for the MF 165.

In Toledo, 350 acres of rice were harvested mechanically by B.L.D.A. An additional 250 acres could not be harvested due to wet conditions in the fields and infestation by wild rice. Other services provided by B.L.D.A. include paddy threshing and planting and transportation of rice paddy from fields to the Belize Marketing Board depots in Toledo.

XIX FERTILIZERS

19.1 1983/84 Consumption (July-June)

	Percentage contents			Imports	Sales
				(metric tons)	(metric tons)
	N	P ₂ O ₅	K ₂ O		
Ammonium sulphate	21	0	0	71	21
Urea	46	0	0	1228	372
Diammonium phosphate	18	46	0	1168	631
Triple superphosphate	0	46	0	0	5
Potassium chloride	0	0	60	360	23
Mixed				1045	3168

19.2 Comparative Statistics

Nutrient tons imported	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>	<u>1983/84</u>
N	932	503	335	936
P ₂ O ₅	963	583	661	610
K ₂ O	220	392	87	362

Source: Prosser Fertilizer and Agrotec Ltd.

19.3 Commentary

Total sales of fertilizer from the major importer, at 4220 metric tons, were 50% higher than in 1982/83. This was mostly accounted for by an increase in consumption of various mixed fertilizers. It reflects increased fertilizer use particularly in the citrus industry, where high prices for oranges have encouraged farmers to apply inputs. Citrus growers have changed from using urea to ammonium nitrate on their groves.

XX AGRICULTURAL CREDIT

20.1 Loans outstanding to the Agricultural Sector 1984 (Dec)

Sub-sector	BZ \$'000		
	Commercial Banks	D.F.C.	Total
Sugar	6552	8087	14639
Citrus	5229	1356	6585
Rice	393	1095	1488
Bananas	1749	1367	3116
Cattle/dairy	873	2544	3417
Poultry/eggs	436	87	523
Honey production	51	252	303
Land clearing/preparation	188	-	188
General and Miscellaneous	<u>1198</u>	<u>2272</u>	<u>3470</u>
Total	16669	17060	33729

20.2 Comparative Statistics

	BZ \$'000			
	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Loans outstanding at 31st December				
Commercial Banks	24,086	22,702	17,189	16,669
DFC	9,465	10,730	13,638	17,060
Total	33,551	33,432	30,827	33,729

Source: Central Bank of Belize, Development Finance Corporation

20.3 Commentary

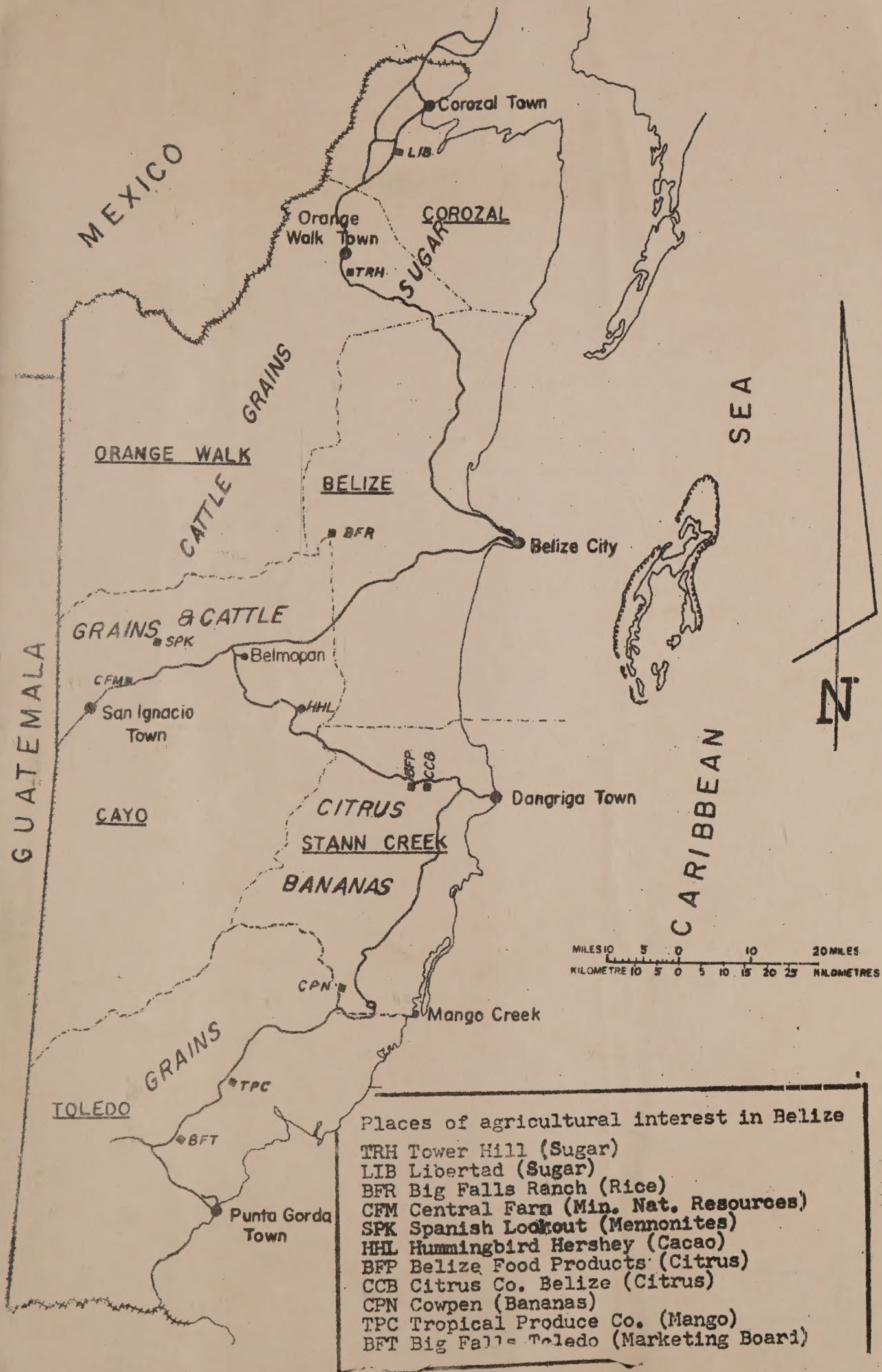
It can be seen that agricultural loans outstanding to D.F.C. have been steadily increasing, whilst those to the commercial banks decreasing in recent years. For the first time in 1984, the D.F.C. figure slightly exceeded the commercial banks.

This can be attributed to a gradual pulling out by the commercial banks from lending activities, plus the fact that their short term loans are more easily recoverable. D.F.C. has expanded its lending programme and its longer-term developmental loans have been subject to considerable rescheduling.

Agriculture accounted for nearly two-thirds of total D.F.C. loan approvals in 1984, amounting to \$3.2 million (including \$.3m for fisheries and \$.2m for forestry). Sugar cane is by far the largest subsector (\$1.4 million approvals). This brings the total amount lent through the CDC Sugar Cane smut rehabilitation scheme to \$4.5 million through the Cane Farmers' Association and \$1 million directly to the larger farmers. Citrus is the next subsector (\$.4 million approvals), again involving onlending of CDC funds. Livestock loans (\$.3 million) are largely for expansion of beef herds. Total number of loans approved in the year was 1011.

Credit is also available to the agricultural sector through the credit unions and cooperatives but data are not available on the extent of this

APPENDIX I



1	RFP	1
1	1	1
1	1	1
1	1	1
1	1	1

